

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent of: Jerry R. Ebner et al.  
Patent No.: 7,067,693 B1  
Issued: June 27, 2006  
Confirmation No.: 3903  
For: DEEPLY REDUCED OXIDATION CATALYST AND ITS USE  
IN PREPARING N-(PHOSPHONOMETHYL)GLYCINE COMPOUNDS

January 8, 2009

**REQUEST FOR EXPEDITED ISSUANCE**  
**OF CERTIFICATE OF CORRECTION UNDER 37 CFR 1.322**

TO THE COMMISSIONER FOR PATENTS,

SIR:

On studying the above-identified patent, the following errors, apparently made by the Patent and Trademark Office, were found (these errors are also noted on the attached form PTO/SB/44):

Column 14, line 35: " $\text{H}_2\text{PtCl}_6/\text{K}_2\text{PtCl}_4$ ," should read - - -  $\text{H}_2\text{PtCl}_6$ ,  $\text{K}_2\text{PtCl}_4$ , - - -.

Column 45, claim 100, line 17: "claim 1" should read - - - claim 99 - - -.

Column 45, claim 101, line 19: "claim 1" should read - - - claim 99 - - -.

Column 45, claim 102, line 23: "claim 1" should read - - - claim 99 - - -.

Column 45, claim 103, line 27: "claim 1" should read - - - claim 99 - - -.

Column 45, claim 104, line 31: "claim 1" should read - - - claim

99 - - -.

Column 45, claim 105, line 35: "claim 1" should read - - - claim  
99 - - -.

Column 45, claim 106, line 43: "claim 1" should read - - - claim  
99 - - -.

Column 45, claim 107, line 47: "claim 1" should read - - - claim  
106 - - -.

Column 45, claim 108, line 50: "claim 1" should read - - - claim  
99 - - -.

Column 58, claim 298, line 46: "claim 296" should read - - -  
claim 290 - - -.

REMARKS

In accordance with 37 CFR 1.322, a copy of Amendment F After Final, dated December 9, 2005, and a copy of the Notice of Allowance dated January 31, 2006, are attached.

We respectfully request that a certificate of correction be issued.

Respectfully submitted,

/Vincent M. Keil/

Vincent M. Keil, Reg. No. 36,838  
SENNIGER POWERS LLP  
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St. Louis, Missouri 63102  
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VMK/clp  
\*Enclosure



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
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## NOTICE OF ALLOWANCE AND FEE(S) DUE

321 7590 01/31/2006  
SENNIGER POWERS YMK  
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ST LOUIS, MO 63102

EXAMINER	
MAIER, LEIGH C	
ART UNIT	PAPER NUMBER
1623	

DATE MAILED: 01/31/2006 ✓

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
✓ 09/408,323	✓ 09/29/1999	✓ JERRY R. EBNER	✓ MTC6610(39-2	✓ 3903

TITLE OF INVENTION: DEEPLY REDUCED OXIDATION CATALYST AND ITS USE IN PREPARING N-(PHOSPHONOMETHYL) GLYCINE COMPOUNDS ✓

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO ✓	\$1400	\$0	\$1400	05/01/2006 ✓

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

## HOW TO REPLY TO THIS NOTICE:

## I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.
- B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

- A. Pay TOTAL FEE(S) DUE shown above, or
- B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

gpb  
mmmm

# **PART B - FEE(S) TRANSMITTAL**

Complete and send this form, together with applicable fee(s), to: **Mail**

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Alexandria, Virginia 22313-1450  
(571) 273-2885**

or **Fax**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

321 7590 01/31/2006

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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop, ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/408,323	09/29/1999	JERRY R. EBNER	MTC6610(39-2	3903

**TITLE OF INVENTION: DEEPLY REDUCED OXIDATION CATALYST AND ITS USE IN PREPARING N-(PHOSPHONOMETHYL) GLYCINE COMPOUNDS**

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$0	\$1400	05/01/2006
EXAMINER		ART UNIT	CLASS-SUBCLASS		
MAIER, LEIGH C		1623	562-017000		

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47, Rev. 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1  
2  
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant, a registered attorney or agent, or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_ Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/408,323 ✓	09/29/1999 ✓	JERRY R. EBNER ✓	MTC6610(39-2)	3903

321 7590 01/31/2006  
SENNIGER POWERS ✓ MK  
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ST LOUIS, MO 63102

EXAMINER

MAIER, LEIGH C

ART UNIT PAPER NUMBER

1623

DATE MAILED: 01/31/2006

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**  
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571) 272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

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**Notice of Allowability**

Application No.

08/408,323

Examiner

Leigh C. Maier

Applicant(s)

EBNER ET AL.

Art Unit

1623

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to AF amendment filed 12/9/05
2. ☒ The allowed claim(s) is/are 1, 2, 6-52, 79-100, 107-229, 236-244, 248, 249, 251-300, 304 and 306-355
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

Leigh C. Maier  
Primary Examiner  
Art Unit: 1623

## **DETAILED ACTION**

### ***Examiner's Amendment***

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Vince Keil on January 20, 2006.

### **IN THE CLAIMS:**

Claim 107, line 2: Delete "106" and insert -- 100 -- therefor.

Claim 108, line 2: Delete "106" and insert -- 100 -- therefor.

### ***Allowable Subject Matter***

Claims 1, 2, 6-52, 79-100, 107-229, 236-244, 248, 249, 251-300, 304 and 306-355 are allowed for reasons of record.

### ***Examiner's hours, phone & fax numbers***

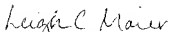
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leigh Maier whose telephone number is (571) 272-0656. The examiner can normally be reached on Tuesday, Thursday, and Friday 7:00 to 3:30 (ET).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Anna Jiang (571) 272-0627, may be contacted. The fax number for Group 1600, Art Unit 1623 is (571) 273-8300.



Art Unit: 1623

Visit the U.S. PTO's site on the World Wide Web at <http://www.uspto.gov>. This site contains lots of valuable information including the latest PTO fees, downloadable forms, basic search capabilities and much more. Information regarding the status of an application may be obtained from the Patent Application Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov> Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197.



Leigh C. Maier  
Patent Examiner  
January 20, 2006

**Examiner-Initiated Interview Summary**

Application No.

09/408,323

Applicant(s)

EBNER ET AL

Examiner

Leigh C. Maier

Art Unit

1623

**All Participants:**(1) Leigh C. Maier.(2) Vince Keil.**Status of Application:** \_\_\_\_\_

(3) \_\_\_\_\_.

(4) \_\_\_\_\_.

**Date of Interview:** 20 January 2006**Time:** \_\_\_\_\_**Type of Interview:**

- ☒ Telephonic  
☐ Video Conference  
☐ Personal (Copy given to: ☐ Applicant ☐ Applicant's representative)

**Exhibit Shown or Demonstrated:** ☐ Yes ☐ No

If Yes, provide a brief description:

**Part I.****Rejection(s) discussed:***none***Claims discussed:***107, 108***Prior art documents discussed:***none***Part II.****SUBSTANCE OF INTERVIEW DESCRIBING THE GENERAL NATURE OF WHAT WAS DISCUSSED:**

*Exr indicated that claims were in order for allowance except for dependence of claims 107 and 108 on canceled claim 106. Mr. Keil authorized change as set forth in attached notice of allowance*

**Part III.**

- ☒ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview directly resulted in the allowance of the application. The examiner will provide a written summary of the substance of the interview in the Notice of Allowability.
- ☐ It is not necessary for applicant to provide a separate record of the substance of the interview, since the interview did not result in resolution of all issues. A brief summary by the examiner appears in Part II above.

(Examiner/SPE Signature)

(Applicant/Applicant's Representative Signature – if appropriate)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application of Jerry R. Ebner et al.                      Art Unit 1623  
Serial No. 09/408,323  
Filed September 29, 1999  
Confirmation No. 3903  
For DEEPLY REDUCED OXIDATION CATALYST AND ITS USE IN PREPARING  
N-(PHOSPHONOMETHYL)GLYCINE COMPOUNDS  
Examiner Leigh C. Maier

December 9, 2005

**AMENDMENT F AFTER FINAL**

TO THE COMMISSIONER FOR PATENTS

SIR:

This amendment is in response to the Office action mailed June 9, 2005. Please enter the following amendments and remarks.

**Amendments to the Claims** are reflected in the listing of claims that begins on page 2 of this paper.

**Remarks** begin on page 51 of this paper.

This Listing of Claims will replace all prior versions and listings of claims in the application:

**Listing of Claims**

Claim 1. (currently amended): A process for the preparation of N-(phosphonomethyl)glycine or a salt thereof, the process comprising contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with an oxidation catalyst in the presence of oxygen, wherein the catalyst:

comprises a carbon support having a noble metal at a surface of the carbon support; and

is characterized as yielding no more than about [1.2] **0.3** mmole of carbon monoxide per gram of catalyst when a dry sample of the catalyst, after being heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before being exposed to an oxidant following the heating in the hydrogen atmosphere, is heated in a helium atmosphere from about 20 to about 900°C at a rate of about 10°C per minute, and then at about 900°C for about 30 minutes.

Claim 2. (original): The process of claim 1 wherein the process is conducted in a continuous reactor system.

Claim 3. (canceled).

Claim 4. (canceled).

Claim 5. (canceled).

Claim 6. (original): The process of claim 1 wherein the oxidation is conducted in a solution or slurry, and oxygen is introduced into the solution or slurry at a rate such that at least about 40% of the oxygen is utilized.

Claim 7. (original): The process of claim 1 wherein the oxidation is conducted in a solution or slurry, and oxygen is

introduced into the solution or slurry at a rate such that at least about 60% of the oxygen is utilized.

Claim 8. (original): The process of claim 1 wherein the oxidation is conducted in a solution or slurry, and oxygen is introduced into the solution or slurry at a rate such that at least about 80% of the oxygen is utilized.

Claim 9. (original): The process of claim 1 wherein the oxidation is conducted in a solution or slurry, and oxygen is introduced into the solution or slurry at a rate such that at least about 90% of the oxygen is utilized.

Claim 10. (previously presented): The process of claim 1 wherein the oxidation is conducted in a solution or slurry, and oxygen is introduced into the solution or slurry at a rate such that at least about 40% of the oxygen is utilized until at least about 80% of the N-(phosphonomethyl)iminodiacetic acid or a salt thereof has been consumed, and then introduced into the solution or slurry at a reduced rate to enhance oxidation of formaldehyde in the solution or slurry.

Claim 11. (previously presented): The process of claim 1 wherein the oxidation is conducted in a solution or slurry and further comprises introducing a sacrificial reducing agent into the solution or slurry.

Claim 12. (original): The process of claim 11 wherein the sacrificial reducing agent comprises formaldehyde, formic acid, or a combination thereof.

Claim 13. (previously presented): A process for the preparation of N-(phosphonomethyl)glycine or a salt thereof, the process comprising contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with an oxidation catalyst in the presence of oxygen, wherein the catalyst comprises a carbon support having

a noble metal, carbon, and oxygen at a surface of the carbon support;

said catalyst being characterized as having a ratio of carbon atoms to oxygen atoms of at least about 20:1 at the surface as measured by x-ray photoelectron spectroscopy after the catalyst is heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before the catalyst is exposed to an oxidant following the heating in the hydrogen atmosphere.

Claim 14. (original): The process of claim 13 wherein the process is conducted in a continuous reactor system.

Claim 15. (original): The process of claim 13 wherein said ratio of carbon atoms to oxygen atoms is at least about 30:1.

Claim 16. (original): The process of claim 13 wherein said ratio of carbon atoms to oxygen atoms is at least about 40:1.

Claim 17. (original): The process of claim 13 wherein said ratio of carbon atoms to oxygen atoms is at least about 50:1.

Claim 18. (original): The process of claim 13 wherein said ratio of carbon atoms to oxygen atoms is at least about 60:1.

Claim 19. (original): The process of claim 13 wherein the ratio of oxygen atoms to noble metal atoms at the surface is less than about 8:1 as measured by x-ray photoelectron spectroscopy.

Claim 20. (original): The process of claim 19 wherein said ratio of oxygen atoms to noble metal atoms is less than about 7:1.

Claim 21. (original): The process of claim 19 wherein said ratio of oxygen atoms to noble metal atoms is less than about 6:1.

Claim 22. (original): The process of claim 19 wherein said ratio of oxygen atoms to noble metal atoms is less than about 5:1.

Claim 23. (previously presented): A process for the preparation of N-(phosphonomethyl)glycine or a salt thereof, the process comprising contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with an oxidation catalyst in the presence of oxygen, wherein the catalyst comprises a carbon support having: (a) a noble metal at a surface of the carbon support; and (b) a surface layer having a thickness of about 50 Å as measured inwardly from the surface and comprising carbon and oxygen, the ratio of carbon atoms to oxygen atoms in the surface layer being at least about 20:1 as measured by x-ray photoelectron spectroscopy after the catalyst is heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before the catalyst is exposed to an oxidant following the heating in the hydrogen atmosphere.

Claim 24. (original): The process of claim 23 wherein the process is conducted in a continuous reactor system.

Claim 25. (original): The process of claim 23 wherein said ratio of carbon atoms to oxygen atoms is at least about 30:1.

Claim 26. (original): The process of claim 23 wherein said ratio of carbon atoms to oxygen atoms is at least about 40:1.

Claim 27. (original): The process of claim 23 wherein said ratio of carbon atoms to oxygen atoms is at least about 50:1.

Claim 28. (original): The process of claim 23 wherein said ratio of carbon atoms to oxygen atoms is at least about 60:1.

Claim 29. (original): The process of claim 23 wherein the ratio of oxygen atoms to noble metal atoms in the surface layer

is less than about 8:1 as measured by x-ray photoelectron spectroscopy.

Claim 30. (original): The process of claim 29 wherein said ratio of oxygen atoms to noble metal atoms is less than about 7:1.

Claim 31. (original): The process of claim 29 wherein said ratio of oxygen atoms to noble metal atoms is less than about 6:1.

Claim 32. (original): The process of claim 29 wherein said ratio of oxygen atoms to noble metal atoms is less than about 5:1.

Claim 33. (previously presented): A process for the preparation of N-(phosphonomethyl)glycine or a salt thereof, the process comprising:

forming an oxidation catalyst by a process comprising depositing a noble metal and a promoter at a surface of a carbon support, and then heating the surface at a temperature of at least about 400°C; and

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with the oxidation catalyst in the presence of oxygen.

Claim 34. (original): The process of claim 33 wherein the N-(phosphonomethyl)iminodiacetic acid or a salt thereof is contacted with the oxidation catalyst in the presence of oxygen in a continuous reactor system.

Claim 35. (original): The process of claim 33 wherein said temperature is at least about 500°C.

Claim 36. (original): The process of claim 33 wherein said temperature is from about 550 to about 1,200°C.



Claim 37. (original): The process of claim 33 wherein said temperature is from about 550 to about 900°C.

Claim 38. (original): The process of claim 33 wherein, before the noble metal deposition, the carbon support has carbon and oxygen at the surface of the carbon support in amounts such that the ratio of carbon atoms to oxygen atoms at the surface is at least about 20:1 as measured by x-ray photoelectron spectroscopy.

Claim 39. (original): The process of claim 33 wherein said heating is conducted in a non-oxidizing environment.

Claim 40. (original): The process of claim 39 wherein said temperature is at least about 500°C.

Claim 41. (original): The process of claim 39 wherein said temperature is from about 550 to about 1,200°C.

Claim 42. (original): The process of claim 39 wherein the non-oxidizing environment consists essentially of at least one gas selected from the group consisting of N<sub>2</sub> and the noble gases.

Claim 43. (original): The process of claim 39 wherein, before the noble metal deposition, the carbon support has carbon and oxygen at the surface of the carbon support in amounts such that the ratio of carbon atoms to oxygen atoms at the surface before the noble metal deposition is at least about 20:1 as measured by x-ray photoelectron spectroscopy.

Claim 44. (original): The process of claim 39 wherein the non-oxidizing environment comprises a reducing environment.

Claim 45. (original): The process of claim 44 wherein said temperature is at least about 500°C.

Claim 46. (original): The process of claim 44 wherein said temperature is from about 550 to about 1,200°C.

Claim 47. (original): The process of claim 44 wherein the reducing environment comprises H<sub>2</sub>.

Claim 48. (original): The process of claim 44 wherein, before the noble metal deposition, the carbon support has carbon and oxygen at the surface of the carbon support in amounts such that the ratio of carbon atoms to oxygen atoms at the surface before the noble metal deposition is at least about 20:1 as measured by x-ray photoelectron spectroscopy.

Claim 49. (original): A process for the preparation of N-(phosphonomethyl)glycine or a salt thereof, the process comprising:

forming an oxidation catalyst by a process comprising: (a) depositing a noble metal at a surface of a carbon support, and (b) exposing the surface to a reducing environment; and

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with the oxidation catalyst in the presence of oxygen, wherein, before the noble metal deposition, the carbon support has carbon and oxygen at the surface of the carbon support in amounts such that the ratio of carbon atoms to oxygen atoms at the surface is at least 20:1 as measured by x-ray photoelectron spectroscopy.

Claim 50. (original): The process of claim 49 wherein the N-(phosphonomethyl)iminodiacetic acid or a salt thereof is contacted with the oxidation catalyst in the presence of oxygen in a continuous reactor system.

Claim 51. (original): The process of claim 49 wherein the reducing environment comprises ammonia.

Claim 52. (original): The process of claim 49 wherein the reducing environment comprises  $\text{NaBH}_4$ .

Claims 53-78 (canceled).

Claim 79. (original): A process for the preparation of N-(phosphonomethyl)glycine or a salt thereof, the process comprising contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with an oxidation catalyst in the presence of oxygen, wherein the catalyst comprises a carbon support having: (a) a noble metal and a promoter at a surface of the carbon support; and (b) a surface layer having a thickness of about 50 Å as measured inwardly from the surface and comprising carbon and oxygen, the catalyst being characterized as having a ratio of carbon atoms to oxygen atoms in the surface layer which is at least about 20:1 as measured by x-ray photoelectron spectroscopy after the catalyst is heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before the catalyst is exposed to an oxidant following the heating in the hydrogen atmosphere.

Claim 80. (original): The process of claim 79 wherein the process is contacted in a continuous reactor system.

Claim 81. (original): The process of claim 79 wherein said ratio of carbon atoms to oxygen atoms is at least about 30:1.

Claim 82. (original): The process of claim 79 wherein said ratio of carbon atoms to oxygen atoms is at least about 40:1.

Claim 83. (original): The process of claim 79 wherein said ratio of carbon atoms to oxygen atoms is at least about 50:1.

Claim 84. (original): The process of claim 79 wherein said ratio of carbon atoms to oxygen atoms is at least about 60:1.

Claim 85. (original): The process of claim 79 wherein the catalyst is further characterized as having a ratio of oxygen atoms to noble metal atoms in the surface layer which is less than about 8:1 after the catalyst is heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before the catalyst is exposed to an oxidant following the heating in the hydrogen atmosphere.

Claim 86. (original): The process of claim 85 wherein said ratio of oxygen atoms to noble metal atoms is less than about 7:1.

Claim 87. (original): The process of claim 85 wherein said ratio of oxygen atoms to noble metal atoms is less than about 6:1.

Claim 88. (original): The process of claim 85 wherein said ratio of oxygen atoms to noble metal atoms is less than about 5:1.

Claim 89. (original): The process of claim 79 wherein at least 0.05% by weight of the catalyst consists of at least one promoter.

Claim 90. (original): The process of claim 79 wherein the promoter is more easily oxidized than the noble metal.

Claim 91. (previously presented): The process of claim 351 wherein the promoter comprises a metal selected from the group consisting of tin, bismuth, lead, cadmium, magnesium, manganese, nickel, aluminum, cobalt, titanium, antimony, selenium, iron, rhenium, cerium, zinc, zirconium and combinations thereof.

Claim 92. (previously presented): The process of claim 91 wherein the promoter comprises tin.

Claim 93. (previously presented): The process of claim 91 wherein the promoter comprises iron.

Claim 94. (previously presented): The process of claim 91 wherein the promoter comprises titanium.

Claim 95. (original): The process of claim 79 wherein at least two promoters are at the surface of the carbon support.

Claim 96. (original): The process of claim 95 wherein the promoters comprise iron and tin.

Claim 97. (previously presented): The process of claim 91 wherein noble metal atoms at the surface are alloyed with the promoter.

Claim 98. (previously presented): The process of claim 91 wherein a majority of the noble metals at the surface are alloyed with the promoter.

Claim 99. (previously presented): The process of claim 91 wherein substantially all of the noble metal atoms at the surface are alloyed with the promoter.

Claim 100. (currently amended): A process for the preparation of a product comprising N-(phosphonomethyl)glycine or a salt thereof by oxidizing a reagent comprising N-(phosphonomethyl)iminodiacetic acid or a salt thereof, the process comprising:

continuously contacting an aqueous feed stream comprising said reagent with an oxygen source in a stirred tank reactor of a continuous reactor system and in the presence of a particulate catalyst comprising a particulate carbon support having a noble metal at a surface of the carbon support and effective for oxidizing said reagent to said product and formaldehyde to carbon dioxide and water, thereby producing a product mixture comprising

said product and containing at least about 5% by weight of said product and less than about 0.5% by weight of formaldehyde, said catalyst being resistant to dissolution of noble metal in the product mixture so that, at a conversion of said reagent to said product of 95%, the extent of dissolution of noble metal in the aqueous reaction mixture is no greater than about 5.3 µg/g N-(phosphonomethyl)glycine produced in the reaction;

separating the particulate catalyst from the product mixture by filtration, thereby producing a product filtrate comprising said product; and

isolating said product from the product filtrate.

Claim 101. (canceled).

Claim 102. (canceled).

Claim 103. (canceled).

Claim 104. (canceled).

Claim 105. (canceled).

Claim 106. (canceled).

Claim 107. (previously presented): A process as set forth in claim 106 wherein the resistance of the catalyst to dissolution of noble metal is such that the extent of dissolution of noble metal in said product mixture is less than about 1.0 µg/g of said product produced in the reaction.

Claim 108. (previously presented): A process as set forth in claim 106 wherein the concentration of said product in said product mixture is from about 5% to about 40% by weight.

Claim 109. (previously presented): A process as set forth in claim 108 wherein the concentration of said product in said product mixture is from about 8% to about 30% by weight.

Claim 110. (previously presented): A process as set forth in claim 109 wherein said product mixture contains at least about 9% by weight of said product and less than about 0.5% by weight of formaldehyde.

Claim 111. (previously presented): A process as set forth in claim 110 wherein the concentration of said product in said product mixture is from about 9% to about 15% by weight.

Claim 112. (previously presented): A process as set forth in claim 111 wherein said noble metal comprises platinum, and the platinum content of said product mixture is less than about 1.0 ug/g of product produced in the reaction.

Claim 113. (previously presented): A process as set forth in claim 109 wherein said oxygen source comprises molecular oxygen.

Claim 114. (previously presented): A process as set forth in claim 113 wherein the formaldehyde content of said product mixture is less than about 0.3% by weight.

Claim 115. (previously presented): A process as set forth in claim 114 wherein the reagent content of the product mixture is no greater than about 0.44% by weight.

Claim 116. (previously presented): A process as set forth in claim 113 wherein the reagent content of the product mixture is at least about 0.08% by weight.

Claim 117. (previously presented): A process as set forth in claim 116 comprising:

continuously contacting a first aqueous reaction medium comprising said feed stream with molecular oxygen in said stirred tank reactor to oxidize the bulk of the reagent and produce said product, formaldehyde and formic acid; and

continuously contacting another aqueous reaction medium containing said product, formaldehyde and formic acid produced in said first aqueous reaction medium with molecular oxygen fed to the continuous reactor system at a reduced rate as compared to the molecular oxygen with which said first aqueous reaction medium is contacted in said stirred tank reactor to oxidize formaldehyde and produce said product mixture.

Claim 118. (previously presented): A process as set forth in claim 117 wherein said oxygen source is molecular oxygen that is introduced separately into said first aqueous reaction medium and into said another aqueous reaction medium.

Claim 119. (previously presented): A process as set forth in claim 118 wherein said another aqueous reaction medium comprises unreacted reagent from said feed stream remaining in said first aqueous reaction medium, the process further comprising oxidizing reagent in said another aqueous reaction medium to produce additional product.

Claim 120. (previously presented): A process as set forth in claim 119 wherein said another aqueous reaction medium is continuously contacted with molecular oxygen in another stirred tank reactor of the continuous reactor system.

Claim 121. (previously presented): A process as set forth in claim 120 wherein 75% of said reagent in said feed stream is consumed in said stirred tank reactor of the continuous reactor system.

Claim 122. (previously presented): A process as set forth in claim 121 wherein 80% of said reagent in said feed stream is



consumed in said stirred tank reactor of the continuous reactor system.

Claim 123. (previously presented): A process as set forth in claim 122 wherein the oxygen feed rate to said stirred tank reactor is greater than about 0.4 L/(kg reaction medium)(min.) and the oxygen feed rate to said another stirred tank reactor is greater than about 0.19 L/(kg reaction medium)(min.).

Claim 124. (previously presented): A process as set forth in claim 122 wherein the oxygen feed rate to the continuous reactor system is such that 40% of the oxygen is utilized.

Claim 125. (previously presented): A process as set forth in claim 124 wherein the oxygen feed rate to the continuous reactor system is such that 60% of the oxygen is utilized.

Claim 126. (previously presented): A process as set forth in claim 125 wherein the oxygen feed rate to the continuous reactor system is such that 80% of the oxygen is utilized.

Claim 127. (previously presented): A process as set forth in claim 126 wherein the oxygen feed rate to the continuous reactor system is such that 90% of the oxygen is utilized.

Claim 128. (previously presented): A process as set forth in claim 125 wherein the pH of the aqueous reaction medium in each of the stirred tank reactors is less than 3.

Claim 129. (previously presented): A process as set forth in claim 128 wherein the pH of the aqueous reaction medium in each of the stirred tank reactors is from about 1 to about 2.

Claim 130. (previously presented): A process as set forth in claim 129 wherein the residence time in the continuous reactor system is from about 3 to about 120 minutes.

Claim 131. (previously presented): A process as set forth in claim 130 wherein the residence time in the continuous reactor system is from about 5 to about 90 minutes.

Claim 132. (previously presented): A process as set forth in claim 131 wherein the residence time in the continuous reactor system is from about 5 to about 60 minutes.

Claim 133. (previously presented): A process as set forth in claim 132 wherein the residence time in said another stirred tank reactor is from about 2 to about 40 minutes.

Claim 134. (previously presented): A process as set forth in claim 133 wherein the residence time in said another stirred tank reactor is from about 5 to about 20 minutes.

Claim 135. (previously presented): A process as set forth in claim 134 wherein the residence time in said another stirred tank reactor is from about 5 to about 15 minutes.

Claim 136. (previously presented): A process as set forth in claim 135 wherein the temperature in said another stirred tank reactor is maintained equal to or less than the temperature in said stirred tank reactor, and the pressure in said another stirred tank reactor is maintained equal to or less than the pressure in said stirred tank reactor.

Claim 137. (previously presented): A process as set forth in claim 135 wherein the reduced oxygen feed rate in said another stirred tank reactor is effective to produce a lesser proportion of by-product aminomethylphosphonic acid than would be produced under otherwise identical conditions except for the reduced oxygen feed rate into said another stirred tank reactor.

Claim 138. (previously presented): A process as set forth in claim 137 wherein the concentration of formaldehyde in said product mixture is less than about 0.15% by weight.

Claim 139. (previously presented): A process as set forth in claim 137 wherein the catalyst is recycled to the continuous reactor system and reused in oxidation of reagent and formaldehyde.

Claim 140. (previously presented): A process as set forth in claim 139 wherein product is isolated from the product filtrate obtained from filtration of the product mixture for separation of the catalyst.

Claim 141. (previously presented): A process as set forth in claim 140 wherein a sacrificial reducing agent is introduced into the continuous reactor system.

Claim 142. (previously presented): A process as set forth in claim 141 wherein formaldehyde produced in the continuous reactor system is recycled to the continuous reactor system.

Claim 143. (previously presented): A process as set forth in claim 142 wherein unreacted formic acid and formaldehyde are removed from the product mixture and recycled to the continuous reactor system as a source of said sacrificial reducing agent.

Claim 144. (previously presented): A process as set forth in claim 143 wherein said catalyst further comprises a promoter at the surface of the carbon support, said promoter constituting at least 0.05% by weight of the catalyst.

Claim 145. (previously presented): A process as set forth in claim 144 wherein said promoter is a metal selected from tin, bismuth, lead, cadmium, magnesium, manganese, nickel, aluminum,

cobalt, titanium, antimony, selenium, iron, rhenium, cerium, zinc, zirconium and combinations thereof.

Claim 146. (previously presented): A process as set forth in claim 145 wherein said promoter is a metal selected from iron, bismuth, tin, and titanium.

Claim 147. (previously presented): A process as set forth in claim 146 wherein the total promoter content constitutes no greater than about 10% by weight of the catalyst.

Claim 148. (previously presented): A process as set forth in claim 147 wherein the total promoter content constitutes from about 0.1% to about 2% by weight of the catalyst.

Claim 149. (previously presented): A process as set forth in claim 148 wherein the total promoter content constitutes from about 0.2% to about 1.5% by weight of the catalyst.

Claim 150. (previously presented): A process as set forth in claim 147 wherein, before said oxidation of said reagent, the catalyst is characterized such that no more than about 1.2 mmole of carbon monoxide per gram of catalyst is desorbed when a dry sample of the catalyst, after being heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before being exposed to an oxidant following the heating in a hydrogen atmosphere is heated in a helium atmosphere from about 20 to about 900°C at a rate of about 10°C per minute, and then at about 900°C for about 30 minutes.

Claim 151. (previously presented): A process as set forth in claim 150 wherein, before said oxidation of said reagent, the catalyst is characterized such that no more than about 0.7 mmole of carbon monoxide per gram of catalyst is desorbed when a dry sample of the catalyst, after being heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before

being exposed to an oxidant following the heating in a hydrogen atmosphere is heated in a helium atmosphere from about 20 to about 900°C at a rate of about 10°C per minute, and then at about 900°C for about 30 minutes.

Claim 152. (previously presented): A process as set forth in claim 151 wherein, before said oxidation of said reagent, the catalyst is characterized such that no more than about 0.5 mmole of carbon monoxide per gram of catalyst is desorbed when a dry sample of the catalyst, after being heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before being exposed to an oxidant following the heating in a hydrogen atmosphere is heated in a helium atmosphere from about 20 to about 900°C at a rate of about 10°C per minute, and then at about 900°C for about 30 minutes.

Claim 153. (previously presented): A process as set forth in claim 152 wherein, before said oxidation of said reagent, the catalyst is characterized such that no more than about 0.3 mmole of carbon monoxide per gram of catalyst is desorbed when a dry sample of the catalyst, after being heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before being exposed to an oxidant following the heating in a hydrogen atmosphere is heated in a helium atmosphere from about 20 to about 900°C at a rate of about 10°C per minute, and then at about 900°C for about 30 minutes.

154. (previously presented): A process as set forth in claim 151 wherein the carbon support has a specific surface area of from about 10 to about 3,000 m<sup>2</sup>/g, as measured by the Brunauer-Emmett-Teller method.

Claim 155. (previously presented): A process as set forth in claim 154 wherein:

the catalyst further comprises carbon and oxygen at the surface of the carbon support and before said oxidation of said

reagent, the catalyst is characterized as having a ratio of carbon atoms to oxygen atoms of at least about 20:1 at the surface of the carbon support as measured by x-ray photoelectron spectroscopy after the catalyst is heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before the catalyst is exposed to an oxidant following the heating in the hydrogen atmosphere.

Claim 156. (previously presented): A process as set forth in claim 155 wherein said ratio of carbon atoms to oxygen atoms is at least about 30:1.

Claim 157. (previously presented): A process as set forth in claim 156 wherein said ratio of carbon atoms to oxygen atoms is at least about 40:1.

Claim 158. (previously presented): A process as set forth in claim 157 wherein said ratio of carbon atoms to oxygen atoms is at least about 50:1.

Claim 159. (previously presented): A process as set forth in claim 158 wherein said ratio of carbon atoms to oxygen atoms is at least about 60:1.

Claim 160. (previously presented): A process as set forth in claim 156 wherein the promoter is more easily oxidized than the noble metal.

Claim 161. (previously presented): A process as set forth in claim 160 wherein said catalyst is prepared by a process comprising depositing a noble metal at the surface of the carbon support, and then heating the surface of the carbon support at a temperature greater than about 500°C.

Claim 162. (previously presented): A process as set forth in claim 161 wherein the surface of the carbon support is heated at a temperature from about 550 to about 1,200°C.

Claim 163. (previously presented): A process as set forth in claim 162 wherein the surface of the carbon support is heated at temperature from about 550 to about 900°C.

Claim 164. (previously presented): A process as set forth in claim 163 wherein said heating of the surface of the carbon support is conducted in the presence of a gas selected from N<sub>2</sub>, a noble gas, H<sub>2</sub>, ammonia, and carbon monoxide.

Claim 165. (previously presented): A process as set forth in claim 162 wherein, before the noble metal deposition, the carbon support has carbon and oxygen at the surface of the carbon support in amounts such that the ratio of carbon atoms to oxygen atoms at the surface is at least about 20:1 as measured by x-ray photoelectron spectroscopy.

Claim 166. (previously presented): A process as set forth in claim 165 wherein noble metal atoms at the surface of the carbon support are alloyed with the promoter.

Claim 167. (previously presented): A process as set forth in claim 166 wherein a majority of the noble metal atoms at the surface of the carbon support are alloyed with the promoter.

Claim 168. (previously presented): A process as set forth in claim 167 wherein substantially all the noble metal atoms at the surface of the carbon support are alloyed with the promoter.

Claim 169. (previously presented): A process as set forth in claim 166 wherein the promoter comprises tin.

Claim 170. (previously presented): A process as set forth in claim 166 wherein the promoter comprises iron.

Claim 171. (previously presented): A process as set forth in claim 166 wherein the promoter comprises titanium.

Claim 172. (previously presented): A process as set forth in claim 166 wherein the promoter comprises bismuth.

Claim 173. (previously presented): A process as set forth in claim 166 wherein the catalyst comprises two promoters at the surface of the carbon support, each said promoter constituting at least 0.05% by weight of the catalyst.

Claim 174. (previously presented): A process as set forth in claim 173 wherein the promoters comprise iron and tin.

Claim 175. (previously presented): A process as set forth in claim 166 wherein at least about 95% of the particles of the particulate carbon support are from about 2 to about 300  $\mu\text{m}$  in their largest dimension.

Claim 176. (previously presented): A process as set forth in claim 175 wherein at least about 98% of the particles of the particulate carbon support are from about 2 to about 200  $\mu\text{m}$  in their largest dimension.

Claim 177. (previously presented): A process as set forth in claim 175 wherein the carbon support has a specific surface area of from about 500 to about 2,100  $\text{m}^2/\text{g}$ , as measured by the Brunauer-Emmett-Teller method.

Claim 178. (previously presented): A process as set forth in claim 177 wherein the carbon support has a specific surface area of from about 750 to about 2,100  $\text{m}^2/\text{g}$ , as measured by the Brunauer-Emmett-Teller method.



Claim 179. (previously presented): A process as set forth in claim 178 wherein the carbon support has a specific surface area of from about 750 to about 1,750 m<sup>2</sup>/g, as measured by the Brunauer-Emmett-Teller method.

Claim 180. (previously presented): A process as set forth in claim 177 wherein the pore volume of the carbon support is from about 0.1 to about 2.5 ml/g.

Claim 181. (previously presented): A process as set forth in claim 180 wherein the pore volume of the carbon support is from about 0.2 to about 2.0 ml/g.

Claim 182. (previously presented): A process as set forth in claim 181 wherein the pore volume of the carbon support is from about 0.4 to about 1.7 ml/g.

Claim 183. (previously presented): A process as set forth in claim 177 wherein the concentration of noble metal deposited at the surface of the carbon support is from about 0.5% to about 20% by weight of the catalyst.

Claim 184. (previously presented): A process as set forth in claim 183 wherein the concentration of noble metal deposited at the surface of the carbon support is from about 2.5% to about 10% by weight of the catalyst.

Claim 185. (previously presented): A process as set forth in claim 184 wherein the concentration of noble metal deposited at the surface of the carbon support is from about 3% to about 7.5% by weight of the catalyst.

Claim 186. (previously presented): A process as set forth in claim 184 wherein the dispersion of noble metal deposited at the surface of the carbon support is such that the concentration of surface noble metal atoms is from about 10 to about 400

μmoles/g as measured by chemisorption of hydrogen using a Micromeritics ASAP 2010C or Altamira AMI100 instrument.

Claim 187. (previously presented): A process as set forth in claim 186 wherein the dispersion of noble metal is such that the concentration of surface noble metal atoms is from about 10 to about 150 μmoles/g.

Claim 188. (previously presented): A process as set forth in claim 187 wherein the dispersion of noble metal is such that the concentration of surface noble metal atoms is from about 15 to about 100 μmoles.

Claim 189. (previously presented): A process as set forth in claim 187 wherein the noble metal is at the surface of the carbon support in the form of metal particles and at least about 90% (number density) of the noble metal particles at the surface of the carbon support are from about 0.5 to about 35 nm in their largest dimension.

Claim 190. (previously presented): A process as set forth in claim 189 wherein at least about 90% (number density) of the noble metal particles at the surface of the carbon support are from about 1 to about 20 nm in their largest dimension.

Claim 191. (previously presented): A process as set forth in claim 190 wherein at least about 90% (number density) of the noble metal particles at the surface of the carbon support are from about 1.5 to about 10 nm in their largest dimension.

Claim 192. (previously presented): A process as set forth in claim 190 wherein at least about 80% (number density) of the noble metal particles at the surface of the carbon support are from about 1.5 to about 7 nm in their largest dimension.

Claim 193. (previously presented): A process as set forth in claim 192 wherein said catalyst contains from about 0.1% to about 2% iron.

Claim 194. (previously presented): A process as set forth in claim 193 wherein, before said oxidation of said reagent, the catalyst is further characterized as having a ratio of oxygen atoms to noble metal atoms at the surface of the carbon support which is less than about 7:1 as measured by x-ray photoelectron spectroscopy.

Claim 195. (previously presented): A process as set forth in claim 194 wherein said ratio of oxygen atoms to noble metal atoms at the surface of the carbon support is less than about 6:1.

Claim 196. (previously presented): A process as set forth in claim 195 wherein said ratio of oxygen atoms to noble metal atoms at the surface of the carbon support is less than about 5:1.

Claim 197. (previously presented): A process as set forth in claim 193 wherein said product is isolated from said product filtrate by precipitation.

Claim 198. (previously presented): A process as set forth in claim 197 wherein said product is isolated by evaporation of a portion of the water contained in said product filtrate to produce a more concentrated solution of said product, and the more concentrated solution is cooled for crystallization of said product.

Claim 199. (previously presented): A process as set forth in claim 198 wherein the catalyst is also effective for oxidation of formic acid to carbon dioxide and water, and formic acid

produced in the continuous reactor system is also oxidized in the continuous reactor system.

Claim 200. (previously presented): A process as set forth in claim 1 comprising:

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said catalyst and oxygen, thereby producing a used catalyst and a liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst and oxygen, thereby producing additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof.

Claim 201. (previously presented): A process as set forth in claim 200 further comprising:

separating said additional liquid reaction product from said used catalyst.

Claim 202. (previously presented): A process as set forth in claim 201 further comprising repetitively contacting said used catalyst with oxygen and further additional N-(phosphonomethyl)glycine or a salt thereof to produce further additional liquid reaction product.

Claim 203. (previously presented): A process as set forth in claim 202 comprising:

initially contacting said catalyst with oxygen and N-(phosphonomethyl)iminodiacetic acid or a salt thereof in a first reaction cycle, to produce a used catalyst and a first liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said first liquid reaction from said used catalyst;

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst in another reaction cycle to produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

Claim 204. (previously presented): A process as set forth in claim 203 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

Claim 205. (previously presented): A process as set forth in claim 200 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid, said used catalyst being separated from said liquid reaction product by filtration.

Claim 206. (previously presented): A process as set forth in claim 13 comprising:

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said catalyst and oxygen, thereby producing a used catalyst and a liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst and oxygen, thereby producing additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof.

Claim 207. (previously presented): A process as set forth in claim 206 further comprising:

separating said additional liquid reaction product from said used catalyst.

Claim 208. (previously presented): A process as set forth in claim 207 further comprising repetitively contacting said used catalyst with oxygen and further additional N-(phosphonomethyl)glycine or a salt thereof to produce further additional liquid reaction product.

Claim 209. (previously presented): A process as set forth in claim 208 comprising:

initially contacting said catalyst with oxygen and N-(phosphonomethyl)iminodiacetic acid or a salt thereof in a first reaction cycle, to produce a used catalyst and a first liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said first liquid reaction from said used catalyst;

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst in another reaction cycle to produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

Claim 210. (previously presented): A process as set forth in claim 209 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

Claim 211. (previously presented): A process as set forth in claim 206 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid, said used catalyst being separated from said liquid reaction product by filtration.

Claim 212. (previously presented): A process as set forth in claim 23 comprising:

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said catalyst and oxygen, thereby producing a used catalyst and a liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst and oxygen, thereby producing additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof.

Claim 213. (previously presented): A process as set forth in claim 212 further comprising:

separating said additional liquid reaction product from said used catalyst.

Claim 214. (previously presented): A process as set forth in claim 213 further comprising repetitively contacting said used catalyst with oxygen and further additional N-(phosphonomethyl)glycine or a salt thereof to produce further additional liquid reaction product.

Claim 215. (previously presented): A process as set forth in claim 214 comprising:

initially contacting said catalyst with oxygen and N-(phosphonomethyl)iminodiacetic acid or a salt thereof in a first reaction cycle, to produce a used catalyst and a first liquid

reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said first liquid reaction from said used catalyst;

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst in another reaction cycle to produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

Claim 216. (previously presented): A process as set forth in claim 215 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

Claim 217. (previously presented): A process as set forth in claim 212 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid, said used catalyst being separated from said liquid reaction product by filtration.

Claim 218. (previously presented): A process as set forth in claim 33 comprising:

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said catalyst and oxygen, thereby producing a used catalyst and a liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said liquid reaction product from said used catalyst; and



contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst and oxygen, thereby producing additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof.

Claim 219. (previously presented): A process as set forth in claim 218 further comprising:

separating said additional liquid reaction product from said used catalyst.

Claim 220. (previously presented): A process as set forth in claim 219 further comprising repetitively contacting said used catalyst with oxygen and further additional N-(phosphonomethyl)glycine or a salt thereof to produce further additional liquid reaction product.

Claim 221. (previously presented): A process as set forth in claim 220 comprising:

initially contacting said catalyst with oxygen and N-(phosphonomethyl)iminodiacetic acid or a salt thereof in a first reaction cycle, to produce a used catalyst and a first liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said first liquid reaction from said used catalyst;

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst in another reaction cycle to produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

Claim 222. (previously presented): A process as set forth in claim 221 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

Claim 223. (previously presented): A process as set forth in claim 218 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid, said used catalyst being separated from said liquid reaction product by filtration.

Claim 224. (previously presented): A process as set forth in claim 49 comprising:

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said catalyst and oxygen, thereby producing a used catalyst and a liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst and oxygen, thereby producing additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof.

Claim 225. (previously presented): A process as set forth in claim 224 further comprising:

separating said additional liquid reaction product from said used catalyst.

Claim 226. (previously presented): A process as set forth in claim 225 further comprising repetitively contacting said used catalyst with oxygen and further additional N-(phosphonomethyl)glycine or a salt thereof to produce further additional liquid reaction product.

Claim 227. (previously presented): A process as set forth in claim 226 comprising:

initially contacting said catalyst with oxygen and N-(phosphonomethyl)iminodiacetic acid or a salt thereof in a first reaction cycle, to produce a used catalyst and a first liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said first liquid reaction from said used catalyst;

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst in another reaction cycle to produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

Claim 228. (previously presented): A process as set forth in claim 227 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

Claim 229. (previously presented): A process as set forth in claim 224 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid, said used catalyst being separated from said liquid reaction product by filtration.

Claims 230-235 (canceled).

Claim 236. (previously presented): A process as set forth in claim 79 comprising:

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said catalyst and oxygen, thereby producing a used catalyst and a liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst and oxygen, thereby producing additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof.

Claim 237. (previously presented): A process as set forth in claim 236 further comprising:

separating said additional liquid reaction product from said used catalyst.

Claim 238. (previously presented): A process as set forth in claim 237 further comprising repetitively contacting said used catalyst with oxygen and further additional N-(phosphonomethyl)glycine or a salt thereof to produce further additional liquid reaction product.

Claim 239. (previously presented): A process as set forth in claim 238 comprising:

initially contacting said catalyst with oxygen and N-(phosphonomethyl)iminodiacetic acid or a salt thereof in a first reaction cycle, to produce a used catalyst and a first liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said first liquid reaction from said used catalyst;

contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with said used catalyst in another reaction cycle to produce additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof;

separating said additional liquid reaction product from said used catalyst; and

contacting additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof in each of a series of further reaction cycles to produce further additional liquid reaction product comprising N-(phosphonomethyl)glycine or a salt thereof in each of said further series of cycles.

Claim 240. (previously presented): A process as set forth in claim 239 wherein said used catalyst is separated from further additional liquid reaction product in each of said cycles.

Claim 241. (previously presented): A process as set forth in claim 236 wherein said catalyst comprises a particulate noble metal on carbon catalyst that is slurried in a liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid, said used catalyst being separated from said liquid reaction product by filtration.

Claim 242. (previously presented): A process as set forth in claim 100 wherein the used particulate catalyst separated from the product mixture is recycled to the continuous reactor system and additional N-(phosphonomethyl)iminodiacetic acid or a salt thereof is contacted with said used catalyst and oxygen, thereby producing additional product mixture comprising N-(phosphonomethyl)glycine or a salt thereof.

Claim 243. (previously presented): A process as set forth in claim 242 further comprising:

separating said used particulate catalyst from said additional product mixture by filtration.

Claim 244. (previously presented): A process as set forth in claim 243 further comprising repetitively contacting said used particulate catalyst with oxygen and further additional N-

(phosphonomethyl)glycine or a salt thereof to produce further additional product mixture.

Claims 245 and 246 (canceled).

Claim 247. (previously presented): A process as set forth in claim 242 wherein said particulate catalyst is slurried in a liquid reaction medium within said stirred tank reactor, said liquid reaction medium comprising N-(phosphonomethyl)iminodiacetic acid or a salt thereof.

Claim 248. (currently amended): A process for oxidizing a reagent in a mixture, the mixture being able to solubilize a noble metal, the process comprising contacting the mixture with an oxidation catalyst in the presence of oxygen, wherein the catalyst:

comprises a carbon support having a noble metal at a surface of the carbon support; and

is characterized as yielding no more than about [1.2]0.3 mmole of carbon monoxide per gram of catalyst when a dry sample of the catalyst, after being heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before being exposed to an oxidant following the heating in the hydrogen atmosphere, is heated in a helium atmosphere from about 20 to about 900°C at a rate of about 10°C per minute, and then at about 900°C for about 30 minutes.

Claim 249. (previously presented): The process of claim 248 wherein the process is conducted in a continuous reactor system.

Claim 250. (canceled).

Claim 251. (previously presented): The process of claim 248 wherein the mixture is acidic.

Claim 252. (currently amended): A process for oxidizing a reagent in a mixture which can solubilize a noble metal, the process comprising contacting the mixture with an oxidation catalyst in the presence of oxygen, wherein the catalyst:

comprises a carbon support having a noble metal selected from the group consisting of platinum, palladium and combinations thereof and a promoter comprising a metal selected from the group consisting of tin, bismuth, lead, cadmium, magnesium, manganese, nickel, aluminum, cobalt, titanium, antimony, selenium, iron, rhenium, cerium, zinc, zirconium and combinations thereof at a surface of the carbon support, the noble metal constituting from about 2.5 to about 10% by weight of the catalyst; and

is characterized as yielding no more than about 1.2 mmole of carbon monoxide per gram of catalyst when a dry sample of the catalyst, after being heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before being exposed to an oxidant following the heating in the hydrogen atmosphere, is heated in a helium atmosphere from about 20 to about 900°C at a rate of about 10°C per minute, and then at about 900°C for about 30 minutes.

Claim 253. (previously presented): The process of claim 252 wherein the process is conducted in a continuous reactor system.

Claim 254. (previously presented): The process of claim 252 wherein said carbon monoxide yield is no greater than about 0.7 mmole of carbon monoxide per gram of catalyst.

Claim 255. (previously presented): The process of claim 252 wherein at least 0.05% by weight of the catalyst consists of at least one promoter.

Claim 256. (previously presented): A process for oxidizing a reagent in a mixture which can solubilize a noble metal, the process comprising contacting the mixture with an oxidation catalyst in the presence of oxygen, wherein the catalyst

comprises a carbon support having a noble metal, carbon, and oxygen at a surface of the carbon support, the ratio of carbon atoms to oxygen atoms at the surface being at least about 20:1 as measured by x-ray photoelectron spectroscopy after the catalyst is heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before the catalyst is exposed to an oxidant following the heating in the hydrogen atmosphere.

Claim 257. (previously presented): The process of claim 256 wherein the process is conducted in a continuous reactor system.

Claim 258. (previously presented): The process of claim 256 wherein said ratio of carbon atoms to oxygen atoms is at least about 30:1.

Claim 259. (previously presented): A process for oxidizing a reagent in a mixture which can solubilize a noble metal, the process comprising contacting the mixture with an oxidation catalyst in the presence of oxygen, wherein the catalyst:  
comprises a carbon support having a noble metal, a promoter, carbon, and oxygen at a surface of the carbon support; and  
is characterized as having a ratio of carbon atoms to oxygen atoms at the surface which is at least about 20:1 as measured by x-ray photoelectron spectroscopy after the catalyst is heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before the catalyst is exposed to an oxidant following the heating in the hydrogen atmosphere.

Claim 260. (previously presented): The process of claim 259 wherein the process is conducted in a continuous reactor system.

Claim 261. (previously presented): The process of claim 259 wherein said ratio of carbon atoms to oxygen atoms is at least about 30:1.



Claim 262. (previously presented): The process of claim 259 wherein at least 0.05% by weight of the catalyst consists of at least one promoter.

Claim 263. (previously presented): A process for oxidizing a reagent in a mixture which can solubilize a noble metal, the process comprising contacting the mixture with an oxidation catalyst in the presence of oxygen, wherein the catalyst comprises a carbon support having (a) a noble metal at a surface of the carbon support; and (b) a surface layer having a thickness of about 50 Å as measured inwardly from the surface and comprising oxygen and carbon, the ratio of carbon atoms to oxygen atoms in the surface layer being at least about 20:1 as measured by x-ray photoelectron spectroscopy after the catalyst is heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before the catalyst is exposed to an oxidant following the heating in the hydrogen atmosphere.

Claim 264. (previously presented): The process of claim 263 wherein the process is conducted in a continuous reactor system.

Claim 265. (previously presented): The process of claim 263 wherein said ratio of carbon atoms to oxygen atoms is at least about 30:1.

Claim 266. (previously presented): A process for oxidizing a reagent in a mixture which can solubilize a noble metal, the process comprising contacting the mixture with an oxidation catalyst in the presence of oxygen, wherein the catalyst:

comprises a carbon support having: (a) a noble metal and a promoter at a surface of the carbon support; and (b) a surface layer having a thickness of about 50 Å as measured inwardly from the surface and comprising carbon and oxygen; and

is characterized as having a ratio of carbon atoms to oxygen atoms in the surface layer of at least about 20:1 as measured by x-ray photoelectron spectroscopy after the catalyst is heated at

a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before the catalyst is exposed to an oxidant following the heating in the hydrogen atmosphere.

Claim 267. (previously presented): The process of claim 266 wherein the process is conducted in a continuous reactor system.

Claim 268. (previously presented): The process of claim 266 wherein said ratio of carbon atoms to oxygen atoms is at least about 30:1.

Claim 269. (previously presented): The process of claim 266 wherein at least 0.05% by weight of the catalyst consists of at least one promoter.

Claim 270. (previously presented): A process for oxidizing a reagent in a mixture which can solubilize a noble metal, the process comprising:

forming an oxidation catalyst by a process comprising depositing a noble metal and a promoter at a surface of a carbon support, and then heating the surface at a temperature of at least about 400°C; and

contacting the mixture with the oxidation catalyst in the presence of oxygen.

Claim 271. (previously presented): The process of claim 270 wherein the mixture is contacted with the oxidation catalyst in the presence of oxygen in a continuous reactor system.

Claim 272. (previously presented): The process of claim 270 wherein at least 0.05% by weight of the catalyst consists of at least one promoter.

Claim 273. (previously presented): The process of claim 272 wherein the promoter is more easily oxidized than the noble metal.

Claim 274. (previously presented): The process of claim 272 wherein the promoter comprises a metal selected from the group consisting of tin, bismuth, lead, cadmium, magnesium, manganese, nickel, aluminum, cobalt, titanium, antimony, selenium, iron, rhenium, cerium, zinc, zirconium and combinations thereof.

Claim 275. (previously presented): The process of claim 272 wherein the promoter comprises tin.

Claim 276. (previously presented): The process of claim 272 wherein the promoter comprises iron.

Claim 277. (previously presented): The process of claim 272 wherein the promoter comprises titanium.

Claim 278. (previously presented): The process of claim 272 wherein at least two promoters are deposited at the surface of the carbon support.

Claim 279. (previously presented): The process of claim 278 wherein the promoters comprise iron and tin.

Claim 280. (previously presented): The process of claim 272 wherein noble metal atoms at the surface are alloyed with the promoter.

Claim 281. (previously presented): The process of claim 272 wherein a majority of the noble metal atoms at the surface are alloyed with the promoter.

Claim 282. (previously presented): The process of claim 272 wherein substantially all of the noble metals at the surface are alloyed with the promoter.

Claim 283. (previously presented): The process of claim 270 wherein said temperature is at least about 500°C.

Claim 284. (previously presented): The process of claim 270 wherein, before the noble metal deposition, the carbon support has carbon and oxygen at a surface of the carbon support in amounts such that the ratio of carbon atoms to oxygen atoms at the surface is at least about 20:1 as measured by x-ray photoelectron spectroscopy.

Claim 285. (previously presented): The process of claim 270 wherein said heating is conducted in a non-oxidizing environment.

Claim 286. (previously presented): The process of claim 285 wherein the non-oxidizing environment comprises a reducing environment.

Claim 287. (previously presented): The process of claim 286 wherein the reducing environment comprises  $H_2$ .

Claim 288. (previously presented): A process for oxidizing a reagent in a mixture which can solubilize a noble metal, the process comprising:

forming an oxidation catalyst by a process comprising: (a) depositing a noble metal at a surface of a carbon support, and (b) exposing the surface to a reducing environment; and contacting the mixture with the oxidation catalyst in the presence of oxygen,

wherein, before the noble metal deposition, the carbon support has carbon and oxygen at the surface of the carbon support in amounts such that the ratio of carbon atoms to oxygen atoms at the surface is at least 20:1 as measured by x-ray photoelectron spectroscopy.

Claim 289. (previously presented): The process of claim 288 wherein the mixture is contacted with the oxidation catalyst in the presence of oxygen in a continuous reactor system.

Claim 290. (previously presented): The process of claim 288 wherein at least 0.05% by weight of the catalyst consists of at least one promoter.

Claim 291. (previously presented): The process of claim 290 wherein the promoter is more easily oxidized than the noble metal.

Claim 292. (previously presented): The process of claim 290 wherein the promoter comprises a metal selected from the group consisting of tin, bismuth, lead, cadmium, magnesium, manganese, nickel, aluminum, cobalt, titanium, antimony, selenium, iron, rhenium, cerium, zinc, zirconium and combinations thereof.

Claim 293. (previously presented): The process of claim 290 wherein the promoter comprises tin.

Claim 294. (previously presented): The process of claim 290 wherein the promoter comprises iron.

Claim 295. (previously presented): The process of claim 290 wherein the promoter comprises titanium.

Claim 296. (previously presented): The process of claim 290 wherein at least two promoters are deposited at the surface of the carbon support.

Claim 297. (previously presented): The process of claim 296 wherein the promoters comprise iron and tin.

Claim 298. (previously presented): The process of claim 290 wherein noble metal atoms at the surface are alloyed with the promoter.

Claim 299. (previously presented): The process of claim 290 wherein a majority of the noble metal atoms at the surface are alloyed with the promoter.

Claim 300. (previously presented): The process of claim 290 wherein substantially all of the noble metals at the surface are alloyed with the promoter.

Claim 301. (canceled).

Claim 302. (canceled).

Claim 303. (canceled).

Claim 304. (currently amended): The process of claim [303]355 wherein the noble metal constitutes from about 3 to about 7.5% by weight of the catalyst.

Claim 305. (canceled).

Claim 306. (currently amended): The process of claim [305]355 wherein the promoter is a metal selected from iron, bismuth, tin and titanium.

Claim 307. (currently amended): The process of claim [305]355 wherein the promoter comprises iron.

Claim 308. (currently amended): The process of claim [305]355 wherein the promoter comprises cobalt.

Claim 309. (currently amended): The process of claim [305]355 wherein the promoter constitutes from about 0.05 to about 10% by weight of the catalyst.

Claim 310. (currently amended): The process of claim [305]**355** wherein the promoter constitutes from about 0.1 to about 2% by weight of the catalyst.

Claim 311. (previously presented): The process of claim 13 wherein the noble metal is selected from the group consisting of platinum, palladium, ruthenium, rhodium, iridium, silver, osmium, gold and combinations thereof.

Claim 312. (previously presented): The process of claim 311 wherein the noble metal is selected from the group consisting of platinum, palladium and combinations thereof.

Claim 313. (previously presented): The process of claim 312 wherein the noble metal constitutes from about 2.5 to about 10% by weight of the catalyst.

Claim 314. (previously presented): The process of claim 313 wherein the noble metal constitutes from about 3 to about 7.5% by weight of the catalyst.

Claim 315. (previously presented): The process of claim 313 wherein the catalyst further comprises a promoter comprising a metal selected from the group consisting of tin, bismuth, lead, cadmium, magnesium, manganese, nickel, aluminum, cobalt, titanium, antimony, selenium, iron, rhenium, cerium, zinc, zirconium and combinations thereof.

Claim 316. (previously presented): The process of claim 315 wherein the promoter is a metal selected from iron, bismuth, tin and titanium.

Claim 317. (previously presented): The process of claim 315 wherein the promoter comprises iron.

Claim 318. (previously presented): The process of claim 315 wherein the promoter comprises cobalt.

Claim 319. (previously presented): The process of claim 315 wherein the promoter constitutes from about 0.05 to about 10% by weight of the catalyst.

Claim 320. (previously presented): The process of claim 319 wherein the promoter constitutes from about 0.1 to about 2% by weight of the catalyst.

Claim 321. (previously presented): The process of claim 23 wherein the noble metal is selected from the group consisting of platinum, palladium, ruthenium, rhodium, iridium, silver, osmium, gold and combinations thereof.

Claim 322. (previously presented): The process of claim 321 wherein the noble metal is selected from the group consisting of platinum, palladium and combinations thereof.

Claim 323. (previously presented): The process of claim 322 wherein the noble metal constitutes from about 2.5 to about 10% by weight of the catalyst.

Claim 324. (previously presented): The process of claim 323 wherein the noble metal constitutes from about 3 to about 7.5% by weight of the catalyst.

Claim 325. (previously presented): The process of claim 323 wherein the catalyst further comprises a promoter comprising a metal selected from the group consisting of iron, bismuth, tin and titanium.

Claim 326. (previously presented): The process of claim 323 wherein the catalyst further comprises a promoter comprising cobalt.



Claim 327. (previously presented): The process of claim 325 wherein the promoter constitutes from about 0.05 to about 10% by weight of the catalyst.

Claim 328. (previously presented): The process of claim 327 wherein the promoter constitutes from about 0.1 to about 2% by weight of the catalyst.

Claim 329. (currently amended): The process of claim ~~[37]~~36 wherein the noble metal is selected from the group consisting of platinum, palladium, ruthenium, rhodium, iridium, silver, osmium, gold and combinations thereof.

Claim 330. (previously presented): The process of claim 329 wherein the noble metal is selected from the group consisting of platinum, palladium and combinations thereof.

Claim 331. (previously presented): The process of claim 330 wherein the noble metal constitutes from about 2.5 to about 10% by weight of the catalyst.

Claim 332. (previously presented): The process of claim 331 wherein the noble metal constitutes from about 3 to about 7.5% by weight of the catalyst.

Claim 333. (previously presented): The process of claim 331 wherein the promoter comprises a metal selected from the group consisting of tin, bismuth, lead, cadmium, magnesium, manganese, nickel, aluminum, cobalt, titanium, antimony, selenium, iron, rhenium, cerium, zinc, zirconium and combinations thereof.

Claim 334. (previously presented): The process of claim 333 wherein the promoter is a metal selected from iron, bismuth, tin and titanium.

Claim 335. (previously presented): The process of claim 333 wherein the promoter comprises iron.

Claim 336. (previously presented): The process of claim 333 wherein the promoter comprises cobalt.

Claim 337. (previously presented): The process of claim 333 wherein the promoter constitutes from about 0.05 to about 10% by weight of the catalyst.

Claim 338. (previously presented): The process of claim 337 wherein the promoter constitutes from about 0.1 to about 2% by weight of the catalyst.

Claim 339. (previously presented): The process of claim 49 wherein the noble metal is selected from the group consisting of platinum, palladium, ruthenium, rhodium, iridium, silver, osmium, gold and combinations thereof.

Claim 340. (previously presented): The process of claim 339 wherein the noble metal is selected from the group consisting of platinum, palladium and combinations thereof.

Claim 341. (previously presented): The process of claim 340 wherein the noble metal constitutes from about 2.5 to about 10% by weight of the catalyst.

Claim 342. (previously presented): The process of claim 341 wherein the noble metal constitutes from about 3 to about 7.5% by weight of the catalyst.

Claim 343. (previously presented): The process of claim 341 wherein forming the oxidation catalyst further comprises depositing a promoter at a surface of the carbon support, wherein the promoter comprises a metal selected from the group consisting of tin, bismuth, lead, cadmium, magnesium, manganese, nickel,

aluminum, cobalt, titanium, antimony, selenium, iron, rhenium, cerium, zinc, zirconium and combinations thereof.

Claim 344. (previously presented): The process of claim 343 wherein the promoter is a metal selected from iron, bismuth, tin and titanium.

Claim 345. (previously presented): The process of claim 343 wherein the promoter comprises iron.

Claim 346. (previously presented): The process of claim 343 wherein the promoter comprises cobalt.

Claim 347. (previously presented): The process of claim 343 wherein the promoter constitutes from about 0.05 to about 10% by weight of the catalyst.

Claim 348. (previously presented): The process of claim 347 wherein the promoter constitutes from about 0.1 to about 2% by weight of the catalyst.

Claim 349. (previously presented): The process of claim 79 wherein the noble metal is selected from the group consisting of platinum, palladium, ruthenium, rhodium, iridium, silver, osmium, gold and combinations thereof.

Claim 350. (previously presented): The process of claim 349 wherein the noble metal is selected from the group consisting of platinum, palladium and combinations thereof.

Claim 351. (previously presented): The process of claim 349 wherein the noble metal constitutes from about 2.5 to about 10% by weight of the catalyst.

Claim 352. (previously presented): The process of claim 351 wherein the noble metal constitutes from about 3 to about 7.5% by weight of the catalyst.

Claim 353. (previously presented): The process of claim 91 wherein the promoter constitutes from about 0.05 to about 10% by weight of the catalyst.

Claim 354. (previously presented): The process of claim 353 wherein the promoter constitutes from about 0.1 to about 2% by weight of the catalyst.

Claim 355 (new): A process for the preparation of N-(phosphonomethyl)glycine or a salt thereof, the process comprising contacting N-(phosphonomethyl)iminodiacetic acid or a salt thereof with an oxidation catalyst in the presence of oxygen, wherein the catalyst:

comprises a carbon support having a noble metal selected from the group consisting of platinum, palladium and combinations thereof at a surface of the carbon support and further comprises a promoter comprising a metal selected from the group consisting of tin, bismuth, lead, cadmium, magnesium, manganese, nickel, aluminum, cobalt, titanium, antimony, selenium, iron, rhenium, cerium, zinc, zirconium and combinations thereof, the noble metal constituting from about 2.5 to about 10% by weight of the catalyst; and

is characterized as yielding no more than about 1.2 mmole of carbon monoxide per gram of catalyst when a dry sample of the catalyst, after being heated at a temperature of about 500°C for about 1 hour in a hydrogen atmosphere and before being exposed to an oxidant following the heating in the hydrogen atmosphere, is heated in a helium atmosphere from about 20 to about 900°C at a rate of about 10°C per minute, and then at about 900°C for about 30 minutes.

**REMARKS**

**Allowed and Allowable Subject Matter**

Applicants acknowledge the allowance of claims 13-52, 79-99, 206-229, 236-241 and 256-300 and 311-354.

Applicants further acknowledge the indication of allowable subject matter in dependent claims 5, 106-199 and 305-310.

**Claim Amendments**

Applicants thank the Examiner for pointing out the apparent inconsistency in the dependency of claim 329. Claim 329 has been amended to depend from claim 36 which recites a preferred heating temperature of from about 550 to about 1,200°C.

Claim 1 has been amended to incorporate the limitation of allowable claim 5 and claims 3-5 have been canceled.

Similarly, claim 248 has been amended to incorporate the limitation of allowable claim 5 and claim 250 has been canceled.

New claim 355 is presented corresponding to the allowable subject matter indicated in claim 305 (including intervening claims 301-303) and claims 301-303 and 305 have been canceled. The dependency of claims 304 and 306-310 has been amended accordingly.

Similarly, claim 252 has been amended to incorporate the allowable subject matter indicated in claim 305 (including intervening claims 301-303).

Claim 100 has been amended to incorporate the limitation of allowable claim 106 (including intervening claims 101-105) and claims 101-106 have been canceled.

Applicants reserve the right to pursue the subject matter of rejected independent claims 1, 100, 248 and 252 and the canceled claims in a continuing application.

Upon entry of this amendment, claims 1, 2, 6-52, 79-100, 107-229, 236-244 and 247-249, 251-300, 304 and 306-355 will be pending in the application.

Favorable reconsideration and allowance of all pending claims are respectfully solicited.

In view of the present amendments presenting allowed or allowable claims, applicants request entry of this amendment after final rejection. However, in the event that this submission would not otherwise be entered, applicants request that this submission be treated as a Conditional Request for Continued Examination pursuant to MPEP 706(h) and authorize the Commissioner to charge the fee under 37 CFR 1.17(e) for the filing of a Request for Continued Examination to Deposit Account No. 19-1345. The Commissioner is requested to charge any other fee deficiency in connection with this amendment to Deposit Account No. 19-1345.

Respectfully submitted,

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